

MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Mail Stop 2321
Gaithersburg, MD 20899-2321

SRM Number: 723d
MSDS Number: 723d
SRM Name: 2-Amino-2-(hydroxymethyl)-1,3-propanediol – Acidimetric Standard
Date of Issue: 25 March 2003

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SECTION I. MATERIAL IDENTIFICATION

Material Name: 2-Amino-2-(hydroxymethyl)-1,3-propanediol

Description: SRM 723d consists of highly purified 2-amino-2-(hydroxymethyl)-1,3-propanediol. It is supplied in a unit consisting of 50 g of powdered material.

Other Designations: 2-Amino-2-(hydroxymethyl)-1,3-propanediol: tris(hydroxymethyl)aminomethane; tris acetate; trizma acetate; aminotrimethylolmetbane; aminotris(hydroxymethyl)methane; trimethylolaminomethane; tris(hydroxymethyl)metbananiine; tris(methylolamino)metbane; Tris; THAM

Name
2-Amino-2-(hydroxymethyl)-1,3-propanediol

Chemical Formula
(HOCH₂)₃-CNH₂

CAS Registry Number
6850-28-8

DOT Classification: Not Hazardous by DOT Regulations

Manufacturer/Supplier: Available from a number of suppliers

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Nominal Concentration	Exposure Limits and Toxicity Data
2-Amino-2-(hydroxymethyl)-1,3-propanediol	100 %	No occupational exposure limits established
		Rat, Oral: LD ₅₀ : 5900 mg/kg
		Rat, Intravenous: LD ₅₀ : 1800 mg/kg
		Mouse, Intravenous: LD ₅₀ : 1210 mg/kg

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

2-Amino-2-(hydroxymethyl)-1,3-propanediol	
Appearance and Odor: white hygroscopic solid with no odor	Boiling Point: not applicable
Relative Molecular Mass: 181.19	pH (0.5 M Solution): 6.0 to 7.0
Density: not available	Odor Threshold: not available
Vapor Pressure: not applicable	Water Solubility: soluble
Freezing Point: not available	Solvent Solubility: slightly soluble in methanol

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable **Method Used:** Not Applicable **Autoignition Temperature:** Not Applicable

Flammability Limits in Air (Volume %): **UPPER:** Not Applicable
LOWER: Not Applicable

Unusual Fire and Explosion Hazards: This material is a slight fire hazard. Dust/air mixtures may ignite or explode.

Hazardous Combustion Products: Thermal oxidative decomposition of 2-Amino-2-(hydroxymethyl)-1,3-propanediol may produce oxides of carbon and nitrogen.

SECTION V. REACTIVITY DATA

Stability: X **Stable** **Unstable**

Conditions to Avoid: Avoid heat, sparks, flames, and other sources of ignition; avoid contact with incompatible materials.

Incompatibility (Materials to Avoid): 2-Amino-2-(hydroxymethyl)-1,3-propanediol is incompatible with acids, bases, metals, and oxidizing agents.

Hazardous Polymerization **Will Occur** X **Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: X **Inhalation** X **Skin** X **Ingestion**

Health Hazards (Acute and Chronic): Inhalation of 2-Amino-2-(hydroxymethyl)-1,3-propanediol may cause irritation of the mucous membranes with tightness and pain in the chest, coughing, and difficulty breathing. Skin and/or eye contact with this material may cause redness and pain. Continued exposure to the skin may cause dermatitis; continued exposure to the eyes may cause and possible corneal damage.

Ingestion of 2-Amino-2-(hydroxymethyl)-1,3-propanediol may cause gastrointestinal irritation and possible burns to the mouth and stomach. Large doses to laboratory animals caused weakness, collapse and death. The estimated fatal dose is 50 grams.

Medical Conditions Generally Aggravated by Exposure: Not Available

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	<u> </u>	<u> X </u>
In the International Agency for Research on Cancer (IARC) Monographs	<u> </u>	<u> X </u>
By the Occupational Safety and Health Administration (OSHA)	<u> </u>	<u> X </u>

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance if necessary.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

Ingestion: If ingestion occurs, wash out mouth with water. **DO NOT** induce vomiting. Obtain medical assistance if necessary.

TARGET ORGAN(S) OF ATTACK: Not Available

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released: Personnel should be protected against contact with this material. Notify safety personnel of large spills.

Waste Disposal: Follow all federal, state, and local laws governing disposal.

Handling and Storage: Protect against direct contact with this material. An eye wash station and washing facilities should be readily available near handling and use areas.

NOTE: Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Tris(Hydroxymethyl)aminomethane Acetate*, 18 March 2002.
NIST SRMP, MSDS 723c *2-Amino-2-(hydroxymethyl)-1,3-propanediol*, 30 January 1998.

Disclaimer: Physical and chemical data contained in this MSDS are provided only for use in assessing the hazardous nature of the material. The MSDS was prepared carefully, using current references; however, NIST does not certify the data on the MSDS. The certified value for this material is given on the NIST Certificate of Analysis.